

# PATENT SPECIFICATION



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## COMPLETE SPECIFICATION

### Improvements relating to Control Levers of Automobiles

I, WILLIAM ARKLEY, of 70, Essex Road, Surrey Hills, E.10, in the State of Victoria, Commonwealth of Australia, a British Subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The invention relates to improvements in the means of actuation of control levers of automobiles and like power driven vehicles and more particularly to improvements relating to the actuation of foot controlled brake and throttle levers by means of a single pedal.

In the driving of automobiles and like power driven vehicles having separate pedals to operate the brakes and the throttle, there is, in an emergency, always a possibility of the driver pressing on the throttle pedal instead of raising his foot therefrom to apply the brakes; also, time is required to perform this operation and this time taken may be an important factor in the avoidance of a collision.

Controlling mechanisms have been devised with the object of providing a single pedal actuation of the brakes and throttle lever but these are intricate in the arrangement of levers and/or they demand an unnatural movement of the foot in either the application of the brakes or the operation of the throttle; for example, in one construction the throttle is operated by a rotary or lateral movement of the foot whilst another construction demands a pressure by the heel of the foot alone to apply the brakes and a full forward thrust of the whole foot will not move the pedal; whilst yet another device requires a pressure by the heel to operate the throttle.

The natural inclination of a driver of an automobile is to operate the throttle by a rotation of the foot forward and to apply the brake by a full forward thrust of his whole foot and it is the object of the invention to provide a construction which enables it to be carried into effect in a simple and inexpensive manner.

In a construction according to the present invention a pedal is pivotally mounted on the end of the foot controlled

brake lever and has depending therefrom an arm angularly adjustable in the plane of rotation of said pedal; which said arm is adapted to actuate a rod to operate the throttle lever when the pedal is rotated on its axis.

When a forward thrust is applied to the pedal the brakes are operated and the throttle is automatically closed, surety of which is provided by a helical spring which is mounted on the accelerator rod and is adapted to bear against the throttle lever to thrust it forward at any time that the accelerator rod is moved forwardly.

Preferred constructions according to the invention are illustrated in the accompanying drawings in which:—

Fig. 1 is a perspective view of the pedal with its appendant arm to which is attached the accelerator rod.

Fig. 2 is a diagrammatic view of the mechanism with no pressure upon the pedal.

Fig. 3 is a diagrammatic view of the mechanism with the pedal tipped forward and the throttle open.

Fig. 4 is a diagrammatic view of the mechanism with the pedal thrust forward, the throttle closed and the brake lever in the position in which the brakes are applied.

Fig. 5 is a plan view from beneath of the pedal carrying a clamp to affix it to a brake pedal.

Fig. 6 is a side elevation of the construction as shown in Fig. 5.

Fig. 7 is a front elevation of the construction as shown in Fig. 5.

Fig. 8 is a diagrammatic sketch of the throttle lever and accelerator rod passing therethrough.

Fig. 9 is a diagrammatic sketch of another modified method of attachment of the accelerator rod.

In the preferred form of construction a pedal 1, substantially in the shape of the sole of a foot, has a heel rest 2 extending therefrom, the said pedal 1 is pivotally mounted on the end of a brake lever 3 by means of a spindle 4 passing through orifices made in webs 5 running along the under side of the said pedal, and through a hole drilled in the brake lever end. The

spindle is held in position by means of a split pin passing through the pedal and the web as shown at 5a or by any other suitable means.

5 The spindle 4 passes through an arm 6 interposed between the brake lever end and one of the webs 5, the said arm 6 being held in position relatively to the pedal 1 by means of a set screw 7, passing through an orifice in the arm and through anyone of a series of holes 8 in the web 5 against which the said arm is juxtaposed. A spring washer 8a between the head of the set screw 7 and the web 5 may be employed to prevent the loosening of the screw by vibration. The arm 6 has affixed thereto one end of the accelerator rod 9 for example by the method illustrated in Fig. 1. whereby the lower end of the arm is recurved and receives, in orifices drilled therein, the angled end 10 of the accelerator rod 9 which is held in the said orifices by a split pin or any other suitable means.

25 The accelerator rod 9 passes through an eyelet in the throttle lever 11 and carries a fixed stop 12 on the side of the said eyelet further from the pedal and a helical spring 13 on the other side thereof. The spring 13 is confined between a slidable washer 14, which is in juxtaposition to the throttle lever 11, and a fixed collar 15 or other suitable stop 15a firmly affixed in position on the accelerator rod 9.

35 It may be stated that, in fitting the above described mechanism to some existing automobiles, it may be necessary, after the ordinary brake pedal is removed, to build up the end of the brake lever before the hole is drilled therein to receive the spindle by means of which the present pedal is adapted to be pivotally mounted thereon.

45 In operation, when the pedal 1 is rotated forwardly in a vertical plane about the horizontal axis created by the spindle 4 it does not move the brake lever 3 but causes the arm 6 to move backwardly and thus draw the accelerator rod 9 back to pull the throttle lever 11 toward the pedal, which operation is adapted to open the throttle to accelerate the vehicle. Upon the pressure on the toe or top of the pedal 1 being eased the arm 6 moves forwardly thus causing the forward movement of the accelerator rod 9 which thus tends to pass through the eyelet in the throttle lever 11, however, as most carburetors are fitted so that the throttle lever moves to open the throttle against the action of a spring (not shown) the force of that spring is sufficient to cause the said throttle lever 11 to follow the stop 12. The closing force on the throttle lever caused by the spring 13 which bears on the said lever is

additional to the force of the spring on the carburetor and gives a more efficient control of the said lever as it ensures that the lever will be in close proximity to the stop 12 at all times until the brakes are applied.

When the pedal 1 is thrust forward with sufficient pressure to move the brake lever 3 the arm 6 moves forward with the pedal and simultaneously moves the rod 11 forward to such a degree that the throttle lever may return to its normal closed position without hindrance by the stop 12 which passes beyond the lever. The movement of the stop 15 in conjunction with the rod 11 compresses the spring 13 so that the reaction of the compression acts on the throttle lever to ensure the closure of the throttle. When the pressure is released from the brake lever the stop 12 returns to a juxtaposition to the throttle lever so that the rotation of the pedal about its axis is again capable of controlling the said lever.

If it be desired to vary the angle of the pedal to the vertical it may be done by adjusting the position of the arm 6 and affixing it in the adjusted position by means of the setscrew 7 passing through the said arm and through one of the series of holes 8 in the web of the pedal.

In a further modification as illustrated in Fig. 9 the offset arm 6 has an eyelet hole at the lower end thereof and the accelerator rod 9 passes therethrough and carries a stop 12a at one end, the other end being attached to the throttle lever. In this modified construction the spring 13 is confined between a stop 15b and a washer juxtaposed to the offset arm 6. The operation is similar to that described above but, in this instance, when the brake lever is thrust forward the offset arm passes along the accelerator rod and directly compresses the spring 13 so that the reaction thereof acts on the stop 15b affixed to the rod 9 and the closure of the throttle is therefore indirectly assisted thereby.

The above constructions have been described as being mounted directly on the end of a brake lever, provision is made, however, for the mounting of the pedal on the existing brake pedal and a method of effecting this is to mount the pedal 1 on an arm 17 of a bracket 18 constructed in the form of an adjustable claw clamp one claw member 18a being detachable and adjustable relatively to the body of the bracket by means of a screw bolt 19 which passes through it into the body of the bracket 18. The claws may grip the existing brake pedal and be held together by the screw bolt 19.

It may be stated further that, to control

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the throttle lever according to the invention in respect of an automobile which carries the carburettor on the other side of the engine to that on which the driver sits, it is necessary to pass the accelerator rod through an eyelet in the rocker arm which extends across the engine, or to connect it directly to the rocker arm and have it passing through the eye in the offset arm as in the modification described above. In this instance the throttle lever is moved forwardly to open the throttle, the rocker arm acting as an intermediate lever and interfering with the direct action of the accelerator rod on the throttle lever.

It is not intended that the invention should be limited by or to the several forms of construction which have been described, but that modifications should be utilized without departure from the scope of the following claims.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Improvements relating to the control of automobiles in which the brakes and the throttle are adapted to be operated by a single pedal characterized in that the said pedal is pivotally mounted on the end of the foot controlled brake lever and has depending therefrom an arm angularly adjustable in the plane of rotation of said pedal; which said arm is adapted

to actuate a rod to operate the throttle lever when the pedal is rotated on its axis.

2. Improvements relating to the control of automobiles in which the brakes and the throttle are adapted to be operated by a single pedal as in claim 1 further characterized in that the said pedal has webs formed on the underside thereof through which said webs passes a spindle which also passes through the end of the foot controlled brake lever.

3. Improvements relating to the control of automobiles in which the brakes and the throttle are adapted to be operated by a single pedal characterized in that the said pedal has webs formed on the underside thereof through which said webs passes a spindle which also passes through the end of the foot controlled brake lever and further characterized in that an arm or lever is loosely connected to the said spindle and is held in position relatively to the said pedal by a set screw or the like passing through the said arm or lever and through one of a series of holes formed in one of the webs on the pedal, the said arm being connected to a rod adapted to actuate the throttle lever.

Dated this 21st day of June, 1935.

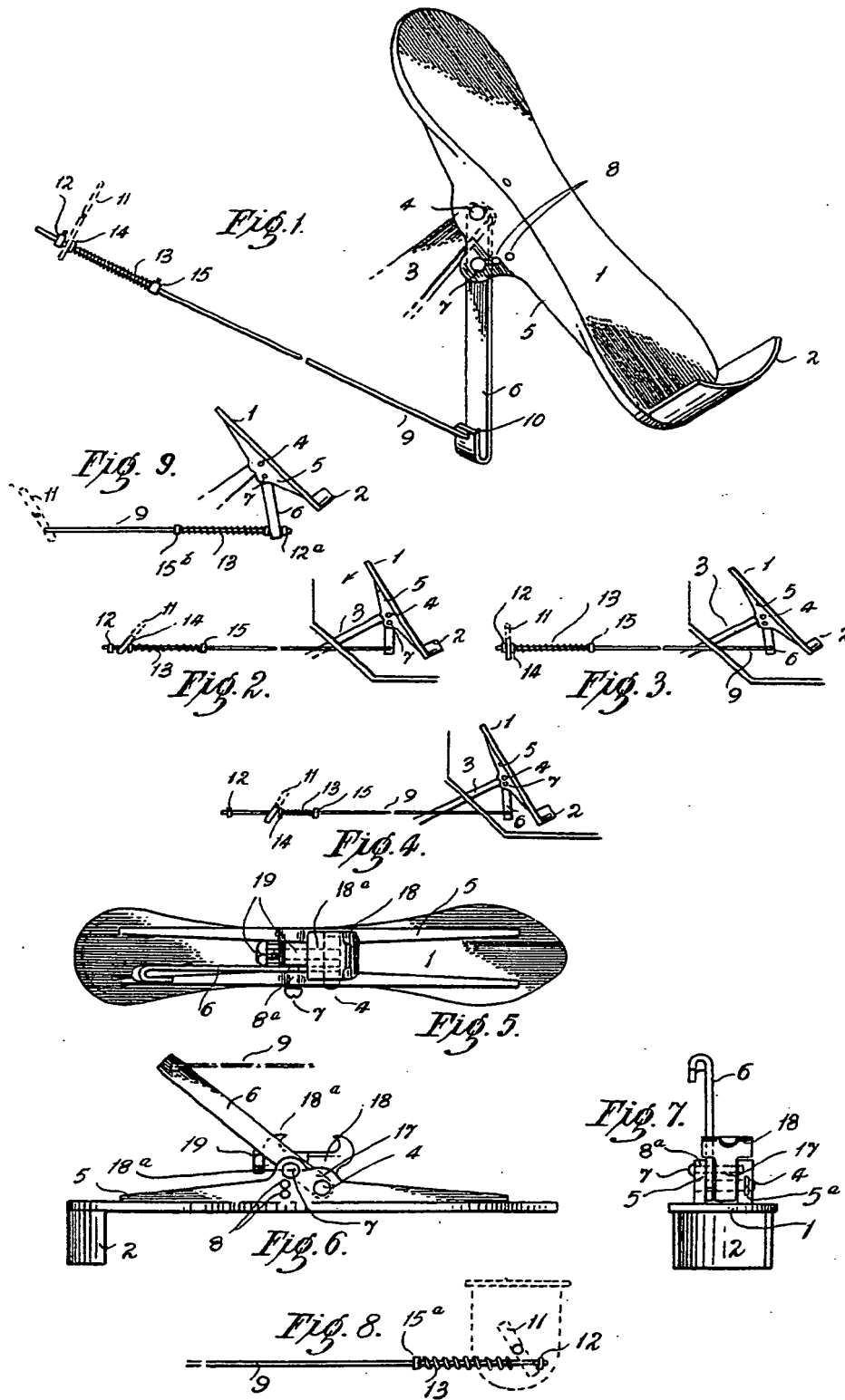
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[This Drawing is a reproduction of the Original on a reduced scale.]



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